

MONITOR WELL PRE-SPUD PROPOSAL

- 1) WELL NAME/NUMBER: BLM-2-Shallow (482)
- 2) PROPOSED LOCATION: (a) General (on or off-site) Off-site
(attach map) Site Area BLM land
(b) Sect 4 Twnshp 21S Rng 3E SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$
- 3) WELL PARAMETERS:
(a) Est. total depth 487 (ft) (b) Est. ground elevation 4535 ft
(c) Anticipated stratigraphy:
Santa Fe Group from 0 ' to TD ' (depth)
_____ from _____ ' to _____ ' (depth)
_____ from _____ ' to _____ ' (depth)
(d) Anticipated water bearing horizon(s):
Santa Fe Group at 462 ' (depth)
_____ at _____ ' (depth)
(e) Anticipated static water level 462 ' (depth)
- 4) WELL PURPOSE/JUSTIFICATION (attach maps and table if needed):
Downgradient monitor well adjacent to BLM-2-482 completed at static water level.
- 5) PROPOSED DRILLING PARAMETERS:
(a) Drilling method(s): (air/foam/mud rotary/auger/etc.)
Air-foam rotary ' from 0 ' to TD ' (depth)
_____ ' from _____ ' to _____ ' (depth)
_____ ' from _____ ' to _____ ' (depth)

Air-foam method: "Quik-Foam" surfactant/water mixture used in conjunction with filtered compress air.

Mud-rotary method: Bentonite mud/water mixture.

- (b) Lithology sampling - collect sample every:
5' intervals Method Grab from 0' to TD (depth)
 *** Core type 2" Christiansen from _____' to _____' (depth)
 2" Christiansen from _____' to _____' (depth)
 2" Christiansen from _____' to _____' (depth)
- (c) Drilling rig type: Chicago Pneumatic rotary rig
- (d) Anticipated drilling additive(s): None
 Water source NASA Quality checked by GC (method)
- (e) Decontamination/Quality Assurance:
 Clean equipment by steam (method) prior to every well
 Clean tools by steam (method) prior to every well
 Other QA procedures Air filtering/monitoring, periodic steam
cleaning of tools/sampling equipment when necessary
- (f) Drilling company: Larjon Drilling
 address: P.O. Box 925, Las Cruces, New Mexico 88047
 Company representative: Larry Johnson Phone 505-526-8672

6) PROPOSED BOREHOLE GEOPHYSICS *****

- (a) Survey type: GR - Neutron from _____' to _____' (depth)
 Survey type: GR-Den-Res-Cal from _____' to _____' (depth)
 Survey type: 16"-40" E-Log from _____' to _____' (depth)
- (b) Geophysical company: Southwest Survey
 address: 4200 Skyline Drive, Farmington, NM 87401
 Company representative: Don Pearson Phone 505-325-8531

7) PROPOSED WELL COMPLETION DESIGN/MATERIALS

(a) Casing:	<u>Material</u>	<u>Diameter</u>	<u>From</u>	<u>To</u>	<u>Comments</u>
Temporary					
Surface	<u>steel</u>	<u>10"</u>	<u>0</u>	<u>100'</u>	
Blank (riser)	<u>stainless</u>	<u>4"</u>	<u>0</u>	<u>+3'</u>	
Screen	<u>stainless</u>	<u>4"</u>	<u>457'</u>	<u>477'</u>	<u>0.02, **</u>
Completion Pipe	<u>stainless</u>	<u>4"</u>	<u>0</u>	<u>TD</u>	<u>*</u>
Silt trap	<u>stainless</u>	<u>4"</u>	<u>to 5' below screen</u>		
Protective Cap	<u>stainless</u>	<u>4"</u>	<u>on top with lock</u>		

NA = Data not available at this time

* for deep completions

** 20 feet recommended to allow for water level fluctuations and probable low yield

*** will not attempt to core alluvium

**** Geophysical logging not necessary since BLM-2-482 was logged.

- (b) Filter pack:
- | | <u>Primary</u> | <u>Secondary</u> |
|---------------------|-----------------------|-------------------------------|
| Material type | <u>Prewashed sand</u> | <u>Prewashed sand</u> |
| Grain Size | <u>8/20</u> | <u>16/40</u> |
| Est. length (thick) | <u>30 feet</u> | <u>2-3' above gravel pack</u> |
- (c) Seal - Upper: Bentonite Thickness 5 feet above upper 16/40 sand
Lower: Bentonite Thickness 5 ft. below lower 16/40 sand*
- (d) Grout - Material 5% Bentonite cement from above completion zone to the surface

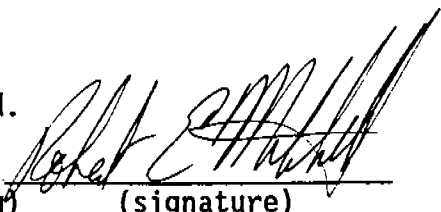
* TD of well should eliminate need for lower plug

8) PROPOSED WELL DEVELOPMENT

- (a) Development method Surge and pump
Equipment Pulling unit with bailer & submersible pump
- (b) Anticipated flow rate 1-5 gpm Duration until adequately devel.
- (c) Company providing service Larion

9) WELL AUTHORIZATION

- (a) Proposed by Geoscience Consultants, Ltd.

(b) Authorized Robert Mitchell NASA
(name) (representing)  (signature)